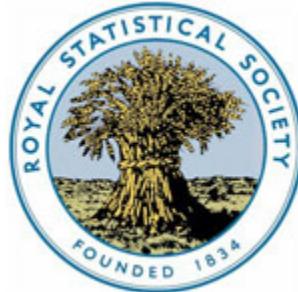


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Review

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and explains methods of standardizing the mortality experiences of communities to enable comparisons to be made. The second deals with the construction of life tables, a subject with which the actuarial student in this country will be familiar from his detailed study of it elsewhere. Its inclusion here, however, is quite logical and it will be of value to the non-actuarial student whose familiarity with these techniques cannot be taken for granted. The third chapter in this group deals with mortality projections and discusses both generation trend and time trend methods of approach.

The chapter on morbidity statistics deals adequately with a very difficult subject; the definition and measurement of sickness and disablement present problems not found in the realm of vital statistics. Morbidity is often said to be out of place under the heading of demography, but this seems altogether too narrow a viewpoint. Quite apart from the direct association between illness and death, the well-being of the members of a population is very important and a study of the quality of life is a natural corollary to its quantitative measurement in years.

Family formation, composition and dissolution and fertility and reproduction are discussed very thoroughly as befits this important aspect of demography. Of marginal interest, perhaps, is the finding that "When age of mother and order of birth are both taken into account, the ratio of males to females at birth did not seem to rise in the United States during World War II, contrary to general impression that this ratio rises in wartime".

Population distribution and migration receive rather fuller treatment than in this country, which may be a consequence of the federal system in the United States and the need for separate figures for each State.

In the chapter on the working population, the treatment is not restricted to the requirements of differential mortality and fertility, but goes much further in its analysis and includes such matter as unemployment and labour mobility and turnover. It is admitted by the author that although the emphasis is on the demographic characteristics of the working population, the economic features are dealt with also. The result is a very interesting and comprehensive chapter, and it would be less than just to cavil at its extending beyond the bounds of pure demography.

The last chapter deals at some length with population estimates and projections. It spends too much time, perhaps, on mathematical methods which are somewhat crude in their application and does not sufficiently pursue the component method. It is necessary for some purposes to prepare population projections not only by age and sex but also by marital status, and the problems involved in obtaining the last-named subdivision are considerable. It is mentioned that "labour force participation by women is influenced in considerable degree by their marital status", but no explanation is given of how to obtain a projection by marital status. Whatever marriage rates may be assumed for the future for men and women in the light of current experience or otherwise, it will be a matter of some difficulty to obtain from them numbers of married men and women which correspond in future years. It would have been a valuable addition to the subject of population projections had this difficulty been discussed, and possibly a practical method of approach demonstrated for the guidance of actuarial students.

C. M. STEWART.

10.—*Operations Research for Management*, Vol. II. Edited by Joseph F. McCloskey and John M. Coppinger. Baltimore: Johns Hopkins Press, 1956. (London: Oxford University Press.) xxxvi, 563 pp. 8*½*". 63s.

A couple of years ago Johns Hopkins University Press issued a text book on Operations Research. This book consisted of a series of papers on the various applications and techniques of the subject written by specialists in the different fields. Success deservedly followed this venture and the publishers have now issued a second volume.

Like its predecessor, this volume consists of papers given at the Operations Research Seminar at Johns Hopkins University. The layout is now slightly different in that chapters are grouped in three sections—Case Histories, Methods and Information Handling. This has the effect of improving the integration of the book although the linkage between successive chapters within a section is not always well established.

The book has as introduction a paper titled "From Plato to the Linear Program" by the Earl of Halsbury, Managing Director of the National Research Development Corporation. This is a most stimulating survey of the interaction between science and the community, and pleads for a bridge between operational research and social science. The book is almost worth purchasing for this article alone.

The section on Case Histories opens with a number of chapters on traffic problems. Three of these may be termed "classic" studies. Firstly there is the work of Eddie on Traffic Delays at Toll Booths which won the Lanchester Prize for 1954 as the best published operational research

work in that year. The second of these papers is an investigation in the New York subway fare structure, attempting to optimize fare structure on the grounds of efficiency, collection cost, revenue and income distribution. This paper is most interesting for the light it sheds on the interaction between a transport system and the life of a community. It is unfortunate that, as the author says, "It must be admitted that the influence of the report has so far been limited to a *succès d'estime*: economists have spoken flatteringly of it; in political and transit circles it appears to have become more of a political football and an object of derision". Such reactions will not be strange to any industrial research worker! The third traffic subject in this section is the work of Eddison and the British Iron and Steel Research Association on iron ore handling in which the optimum layout and equipment for unloading ore at ports are derived.

The section on methodology has chapters on measurement, the design of experiments, organization, queueing, linear programming, game theory and Monte Carlo methods. The final chapter in this section is a philosophical analysis of the relationship between operational research, planning and value by West Churchman, one of the United States's leading operational research workers.

For some years past the Massachusetts Institute of Technology has carried out research on Information Handling. A number of papers on this topic are grouped in the final section. The problem here is a study of the management of communications. What channels of communication within a "body" are best for the task the "body" has to accomplish? Early work on this was devoted to experiments on teams set various tasks in which their communication patterns were laid down *a priori*. From this has stemmed a whole field of enquiry—mostly on the laboratory or controlled experimental approach from which a number of fairly firm conclusions emerge. This work is important for all who have the direction of teams but it will need linking up with reality—the theory now needs testing in the hurly burly of industry.

As can be seen the book covers a wide field of industries, of types of problem and of methods of solution. Like its predecessor, it is concerned with mapping out the ground of operational research and as such it will be of interest both to the operational research specialist, who wants to know the work done in particular fields, and to the scientist in other related fields who wants to know something of what the operational research people are up to. However, if operational research is a science of its own, then it is capable of a logical connected exposition of its theory with practical examples and case studies thrown in as illustrations. Whether or not this stage has been reached is open for debate but there is still a case for someone somewhere to write the first integrated account of this young and exciting science.

B. H. P. RIVETT.

11.—*Distribution's Place in the American Economy since 1869*. By Harold Barger. National Bureau of Economic Research. Princeton University Press, 1955. (London: Oxford University Press.) xviii, 222 pp. 9". \$4.50.

This volume is a valuable addition to the series of National Bureau publications dealing with production, employment and productivity in American industry. Mr. Barger has played an important part in the writing of the earlier volumes in the series, having been author and co-author respectively of the volumes on *The Transportation Industries, 1889–1946* (1951) and on *American Agriculture, 1899–1939* (1942). Much of the present volume is firmly based on the results of work done, mostly at the Bureau, by the author himself and by Carson, Kuznets, Shaw, Stigler and others.

The scheme of the book is straightforward. The first part, which deals with productivity in distribution, contains three chapters on the growth of labour input, distributive output and labour productivity. The second part presents the results of the author's comprehensive researches into the history of distribution costs in the United States since 1869. It consists of four chapters dealing respectively with measures of the cost of distribution, channels of distribution, trends in margins and measures of total distributive spread by kind of retail outlet.

The text takes up no more than 100 pages. Another hundred are given over to four highly valuable appendices. Two of these appendices contain detailed descriptions of sources and methods used in the text tables concerned with employment, earnings, labour income and value added in distribution. Another, of 45 pages, lists periodicals and other sources from which retail and wholesale margin data were drawn, chronologically and by kind of retail and wholesale business. The final appendix provides a bibliography of pre-1919 periodicals in the distribution field.

The claim made in the preface, that "the earlier figures (i.e. those in respect of the period before World War I) represent the clearest picture of that period that can now be, or perhaps ever will be, assembled for the particular field to which they relate", is not likely to be questioned. The